Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Kraken Operating, LLC
Well Name/Number: Three C 7
Location: SW SE Section 6 T26N R51E
County: Richland**, MT; Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)
Long drilling time: No, 20-25 days drilling time.
Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single lateral horizontal Bakken Formation test, 12,882'MD/7,824'TVD.
Possible H2S gas production: Slight chance H2S gas from Mississippian Formations.
In/near Class I air quality area: Yes, closest Class I air quality area in the area of review is the Fort Peck Indian Reservation, about 3 miles to the north from this location.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____

Comments: Triple derrick drilling rig to drill a single lateral horizontal Bakken Formation test, If there is an existing pipeline for associated gas/H2S gas in the area and gas can be gathered or if no gathering system nearby limited amount of associated gas/H2S gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)
Salt/oil based mud: Yes to intermediate string hole to be drilled with oil based invert (75/25 – 80/20) drilling fluids. Horizontal lateral will be drilled with oil based invert (75/25 – 80/20) drilling fluids. Surface casing hole will use freshwater and freshwater mud system, Rule 36.22.1001.
High water table: No high water table anticipated.
Surface drainage leads to live water: no -Closest drainage is Glendive Coulee.
Water well contamination: No 2 stock water wells in sec 6 –one domestic well in section 7—will drill surface hole with freshwater and freshwater drilling fluids to 1000' (Rule 36.22.1001) and will run 1000' of steel surface casing and cement it to surface.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: Yes, the only Class I stream drainage is the Missouri River in the area of review, about 3 miles to the north from this location.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
X **Off-site disposal of liquids** (in approved facility)
X Other: Lined cuttings pit for cutting disposal on the wellsite._____

Comments: 1000' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer, Rule 36.22.1001. Adequate surface casing and BOP equipment to prevent any problems (BOP's 5,000 psig annular, pipe and blind rams) rule 36.22.1014.

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: no.
High erosion potential: No, . Location needs a moderate cut/fill of about 17 feet..
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, large well site 430'X400',
Damage to improvements: Slight, surface use is grazing land.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will be over existing county road, Operator will construct, about 1300' of new access road into this location from the existing road. Oil based invert drilling fluids will be recycled. Completion fluids will be trucked to a Class II disposal. Operator will utilize a closed loop mud system. Cuttings and mud solids will be disposed of in the lined cuttings pit and solidified on the wellsite. Line will be a 16 mil impervious liner. No concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Closest residence is over a mile away.
Possibility of H2S: Slight chance H2S gas from Mississippian Formations.
Size of rig/length of drilling time: Triple drilling rig 20 to 25 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with a working BOP stack should mitigate any problems, (BOP's 5,000psig annular, pipe and blind rams) rule 36.22.1014.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No, none.
Conflict with game range/refuge management: No, none.
Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Least Tern, Whooping Crane and Piping Plover. Candidate species are the Sprague's Pipit and the Greater Sage Grouse. NH tracker website indicates two (2) species of concern in this area, Townsend's Big-eared Bat and the Great Blue Heron.

Mitigation:
__ Avoidance (topographic tolerance/exception)

__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other: _____
Comments: This is private grazing lands. There may be species of concern that maybe impacted by this wellsite. The operator is expected to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites: None identified.
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____
Comments: This is private cultivated surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: No concerns.
_____
_____

Remarks or Special Concerns for this site

Single lateral horizontal Bakken Formation well test, 1
_____

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.
_____
_____
_____

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Thomas Richmond
(title:) Administrator_____

Date: February 21, 2014

Other Persons Contacted:
Bureau of Mines and Geology, GWIC website_____
_____
(Name and Agency)

Water wells in Richland County, Montana
(subject discussed)
February 21, 2014
(date)

Montana Natural Heritage Program Website
(Name and Agency)
Heritage State Rank= S1, S2, S3 T26N R51E
(subject discussed)

February 21, 2014
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 24 T26N R51E
(subject discussed)

February 21, 2014
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____